

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-234510

(43)Date of publication of application : 27.08.1999

(51)Int.Cl.

H04N 1/387

H04N 1/00

H04N 1/21

(21)Application number : 10-032684

(71)Applicant : FUJI PHOTO FILM CO LTD

(22)Date of filing : 16.02.1998

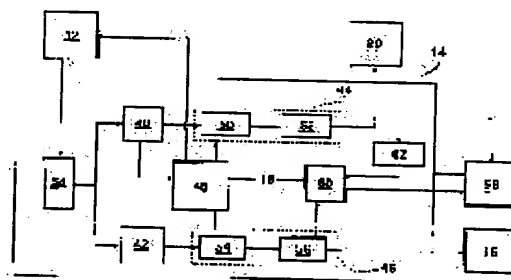
(72)Inventor : ENOMOTO ATSUSHI

(54) IMAGE INPUT DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain the device that properly stores image data on a storage medium with excellent workability depending on a residual capacity of the storage medium or request from a customer or the like by calculating the residual capacity of the storage medium and converting the resolution of the image data depending on the calculation result.

SOLUTION: Image data processed by a data conversion section 56 of a main scanning data processing section 46 are outputted to an output device 16 and a resolution conversion section 60. The resolution conversion section 60 applies resolution conversion to the image data outputted from the data conversion section 56 depending on a residual capacity of a storage device 58 detected by a amount detection section 62 and provides an output of the result to the storage device 58. The amount detection section 62 detects a residual capacity of the storage medium mounted on the storage device 58 by any of various methods and gives the result of detection to the resolution conversion section 60. The resolution conversion section 60 converts the resolution depending on the residual capacity or an instruction of an operation system 18 or the like to adjust the amount of the image data.



LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision]

of rejection]

[Date of requesting appeal against examiner's
decision of rejection]

[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] The picture input device characterized by having a remaining capacity calculation means to compute the remaining capacity of said record medium by being the picture input device which reads in photoelectricity the image recorded on the film manuscript with image sensors, and outputs it to either [at least] a record medium or a printer as digital image data, and a resolution conversion means to change resolution of image data according to the remaining capacity calculation result of the record medium by said remaining capacity calculation means.

[Claim 2] said resolution conversion means — electronic variable power processing and gradation — resolution — the picture input device according to claim 1 which performs at least one of conversion, infanticide, and the compression.

[Claim 3] In addition to the remaining capacity of a record medium, said resolution conversion means is a picture input device according to claim 1 or 2 which performs resolution conversion according to directions by the operator.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention reads in photoelectricity the image recorded on the film (photography), and belongs to the technical field of the picture input device outputted as digital image data.

[0002]

[Description of the Prior Art] The so-called direct exposure (analog exposure) of baking to the sensitive material (printing paper) of the image photoed by photographic films (it considers as a film hereafter), such as current, a negative film, and a reversal film, which projects the image of a film on sensitive material and carries out field exposure of the sensitive material is in use.

[0003] On the other hand, in recent years, the printing equipment using digital exposure, i.e., the image recorded on the film, was read in photoelectricity, and after making the read image into a digital signal, various image processings were performed and it considered as the image data for record, and scan exposure of the sensitive material was carried out by the record light modulated according to this image data, the image (latent image) was recorded, and the digital photograph printer considered as a print (workmanship) was put in practical use. By the digital photograph printer, amendment of a jump of the image which originates an image in a backlight, speed light photography, etc. since image data processing can determine the exposure conditions at the time of printing as digital image data, amendment of TSUBURE, sharpness (sharp-izing) processing, a color, or concentration Ferrier etc. is performed suitably, and the high-definition print which was not obtained can be obtained in the conventional direct exposure. Moreover, an output is possible also for composition and image division of two or more images, and the print which could perform composition of an alphabetic character etc. by image data processing further, responded to the application, and was edited / processed freely.

[0004] The scanner with which such a digital photograph printer reads fundamentally the image recorded on the film in photoelectricity (image reader), And the picture input device which has the image processing system which carries out the image processing of the read image, and is made into the image data for an output (exposure conditions); It has the printer (image recording equipment) which carries out scan exposure of the sensitive material according to the image data outputted from the picture input device, and records a latent image, and the image output unit which has the processor (developer) which performs a development to sensitive material [finishing / exposure], and is considered as a print, and is constituted.

[0005] With a scanner, incidence of the reading light injected from the light source is carried out to a film, the projection light which supports the image photoed by the film is obtained, and after reading an image and performing various kinds of processings if needed by carrying out image formation of this projection light to image sensors, such as a CCD sensor, and carrying out photo electric conversion to them with an image formation lens, it sends to an image processing system as image data (image data signal) of a film. An image processing system performs the image processing according to the conditions which set up image-processing conditions and were set up from the image data read with the scanner to image data, and sends it to a printer as output image data for image recording (exposure conditions). If it is equipment using light

beam scan exposure, while modulating a light beam according to the image data sent from the image processing system and deflecting this light beam to a main scanning direction by the printer, for example Sensitive material is exposed by the light beam which supports an image by conveying sensitive material in the direction of vertical scanning which intersects perpendicularly with a main scanning direction (burned), and a latent image is formed. Subsequently The development according to sensitive material etc. is performed in a processor, and it considers as the print (photograph) with which the image photoed by the film was reproduced.

[0006]

[Problem(s) to be Solved by the Invention] According to such a digital photograph printer, since image data can also be saved at storages, such as a floppy disk, even if there is no negative film used as a manuscript etc., it can print additionally, and it not only prints and outputs an image, but can obtain easily the reprint by which the still more nearly same image as a coincidence print was reproduced. Moreover, according to the digital photograph printer, it is also possible to supply image data and its file to a computer etc., but by recent years, it is easy with spread and an advance of a personal computer, photo retouch software, etc. to use image data for various applications, and it is thought that demand of outputting to a storage by making a photograph into an image data file according to it increases.

[0007] Here, there is very much amount of data at the time of using an image as digital data as everyone knows. On the other hand, there is a limitation in the capacity of a storage. Therefore, in case an operator outputs the image data of the print obtained from the film to a storage, he needs to work checking the number of images and the remaining capacity of a storage which should be memorized, and has become a time-consuming activity.

[0008] The purpose of this invention is a picture input device which reads the image recorded on the film, performs required processing, and is outputted to a record medium or a printer, is faced outputting image data to a storage, and is further to offer the remaining capacity of a storage, or the picture input device which is good workability and can memorize image data to a storage suitably according to a customer's hope etc.

[0009]

[Means for Solving the Problem] In order to solve said technical problem, this invention reads in photoelectricity the image recorded on the film manuscript with image sensors. A remaining capacity calculation means to compute the remaining capacity of said record medium by being the picture input device outputted to either [at least] a record medium or a printer as digital image data, The picture input device characterized by having a resolution conversion means to change resolution of image data, according to the remaining capacity calculation result of the record medium by said remaining capacity calculation means is offered. [0010] moreover, said resolution conversion means — electronic variable power processing and gradation — resolution — it is desirable to perform at least one of conversion, infanticide, and the compression, and, as for said resolution conversion means, it is still more desirable to perform resolution conversion according to directions by the operator in addition to the remaining capacity of a record medium.

[0011]

[Embodiment of the Invention] Hereafter, the picture input device of this invention is explained to a detail based on the suitable example shown in an attached drawing.

[0012] The block diagram of an example of a digital photograph printer which uses the picture input device of this invention for drawing 1 is shown. The digital photograph printer (it considers as the photograph printer 10 hereafter) shown in drawing 1 The picture input device concerning this invention which has the image processing system 14 which performs the scanner (image reader) 12 which reads fundamentally the image photoed by Film F in photoelectricity, the image processing of the read image data (image information) and actuation of the photograph printer 10 whole, control, etc., The output unit 16 which carries out image exposure, carries out the development of the sensitive material (printing paper) by the light beam modulated according to the image data outputted from the image processing system 14, and is outputted as a print (workmanship), It has the storage 58 which reads the image data which the image data outputted from the image processing system 14 was stored in the storage, and was memorized by the

storage, and is supplied to an image processing system 14, and is constituted. Moreover, the display 20 which displays the image read with the scanner 12, various kinds of operator guidance, setup/registration screen of various conditions, etc. as the actuation system 18 which has keyboard 18a and mouse 18b for inputting directions of the input (setup) of various conditions, selection of processing, directions, a color / concentration amendment, etc., etc. is connected to an image processing system 14.

[0013] A scanner 12 is equipment which reads at a time in photoelectricity one coma of images photoed by Film F etc. The light source 22, a variable aperture 24, and the diffusion box 28 that makes homogeneity reading light which carries out incidence to Film F in the direction of a field of Film F. It has the image formation lens unit 32, the image sensors 34 which have the Rhine CCD sensor corresponding to each image reading of R (red), G (green), and B (blue), and amplifier (amplifier) 36, and is constituted.

[0014] Moreover, in the photograph printer 10, according to the gestalt of films, such as a class of films, such as an advanced photo system (Advanced Photo System) and a negative (or reversal) film of 135 sizes, size and SUTORIPPUSU, and a slide, etc., the carrier 30 of dedication with which the body of a scanner 12 can be equipped freely is prepared, and it can respond to various kinds of films or processing by exchanging a carrier 30. The image (coma) with which is photoed by the film and print creation is presented is conveyed by the predetermined reading station with this carrier 30. Moreover, as everyone knows, a magnetic-recording medium is formed in the film of an advanced photo system, and Cartridge ID, the film kind, etc. are recorded on it, and various kinds of data, such as photography, development time and a camera, and a model of developing machine, can be recorded at the time of photography and development etc. The reading means of this magnetic information is arranged, on the carrier 30 corresponding to the film (cartridge) of an advanced photo system, in case a film is conveyed to a reading station, magnetic information is read, and said various kinds of information is sent to an image processing system 14.

[0015] In case the image photoed by Film F is read in such a scanner 12, it is injected from the light source 22, and when the reading light quantity of light adjustment was carried out [light] by the variable aperture 24 carries out incidence to the film F located in the predetermined reading station and penetrates with a carrier 30, the projection light which supports the image photoed by Film F is obtained.

[0016] As a carrier 30 corresponds to the film [long picture /, such as a film of 135 sizes of for example, 24 sheet picking, and a cartridge of an advanced photo system,] F (SUTORIPPUSU) and it is typically shown in drawing 2 (a) In the direction of vertical scanning which intersects perpendicularly with the extension direction (main scanning direction) of the Rhine CCD sensor of image sensors 34, Film F being located in a predetermined reading station Conveyance roller pair 30a and 30b which are in agreement and convey the longitudinal direction of Film F and which are arranged on both sides of a reading station in the direction of vertical scanning. It has the mask 26 which has slit 26a which regulates the projection light of Film F in the shape of [predetermined] a slit, and which extends in the main scanning direction in which it is located corresponding to a reading station. Incidence of the film F is carried out in reading light, being located in a reading station and conveyed in the direction of vertical scanning by this carrier 30. Thereby, as a result, slit scanning is carried out two-dimensional by slit 26a to which Film F extends in a main scanning direction, and the image of each coma photoed by Film F is read.

[0017] Image formation of the projection light of Film F is carried out to the light-receiving side of image sensors 34 by the image formation lens unit 32. As shown in drawing 2 (b), image sensors 34 are the so-called color CCD sensors of three lines which have Rhine CCD sensor 34G which perform reading of Rhine CCD sensor 34R which reads R image, and G image, and Rhine CCD sensor 34B which performs reading of B image, and each Rhine CCD sensor has extended in the main scanning direction as mentioned above. By these image sensors 34, it is decomposed into the three primary colors of R, G, and B, and the projection light of Film F is read in photoelectricity. The output signal of image sensors 34 is amplified with amplifier 36, and is sent to an image processing system 14.

[0018] In a scanner 12, it carries out by two image reading by the press can which reads reading

of the image photoed by Film F with a low resolution, and this scan for obtaining the image data of an output image. A press can is performed on the reading conditions of the press can set up beforehand so that the image of all the target films [scanner / 12] F can be read without saturating image sensors 34. On the other hand, this scan is performed on the reading conditions set up for every coma so that image sensors 34 may be saturated with concentration [a little] lower than the least concentration of the image (coma) from press can data.

[0019] In addition, limitation is not carried out to what twists the scanner which constitutes the picture input device of this invention to such slit scanning, but it may be based on the field exposure which reads the whole surface of the image of one coma at once. In this case, the insertion means of each color filter of R, G, and B is established between the light source and that of Film F, for example using an area CCD sensor, by performing inserting a color filter and reading an image by the area CCD sensor one by one with each color filter of R, G, and B, it decomposes into the three primary colors and the image photoed by Film F is read.

[0020] As mentioned above, the output signal from a scanner 12 is outputted to an image processing system 14 (it considers as a processor 14 hereafter). The block diagram of a processor 14 is shown in drawing 3. A processor 14 makes the output signal from a scanner 12 digital image data, performs a predetermined image processing to this image data, outputs it to a printer 16 or a store 58 as image data for an output, has the data-processing section 38, the press can (frame) memory 40, this scanning (frame) memory 42, the press can data-processing section 44, this scanning data-processing section 46, the conditioning section 48, the resolution transducer 60, and the residue detecting element 62, and is constituted. In addition, drawing 3 mainly shows an image-processing-related part, and the memory which memorizes information required for actuation of CPU which performs control and management of the photograph printer 10 whole which contains a processor 14 in a processor 14 besides this, and the photograph printer 10 etc. is arranged, and the actuation system 18 and a display 20 are connected at least to each part through this CPU (CPU bus) etc.

[0021] Each output signal of R, G, and B which were outputted from the scanner 12 In the data-processing section 38 A/D (analog-to-digital) conversion, Log conversion (gray scale conversion), Data processing, such as amendment, a shading compensation, DC offset amendment, and defective pixel amendment, is performed at the time of dark. It considers as digital image data, and press can (image) data are used as the press can memory 40, and these scanning (image) data are memorized by this scanning memory 42, respectively (storing). In addition, in a press can and this scan, the output signal from a scanner 12 is the same data fundamentally, except that a pixel consistency differs from an output level.

[0022] These scanning data which the press can data memorized by the press can memory 40 are the press can data-processing section 44 which has the image-processing section 50 and the image data-conversion section 52, and were memorized by another side and this scanning memory 42 are this scanning data-processing section 46 which has the image-processing section 54 and the image data-conversion section 58, and are processed, respectively.

[0023] The image-processing section 50 of the press can data-processing section 44 and the image-processing section 54 of this scanning data-processing section 46 are parts which perform a predetermined image processing to image data according to the image-processing conditions which the conditioning section 48 mentioned later set up. This image-processing section 50 and the image-processing section 54 perform the same processing fundamentally, except that resolution differs. Various kinds of image processings which limitation does not have in the image processing performed in both the processing section, for example, are performed with well-known image processing systems, such as color balance adjustment, gradation adjustment, concentration adjustment, saturation adjustment, electronic variable power processing, cover baking processing (compression/expanding of a concentration dynamic range), and sharpness processing (sharp-ized processing), are illustrated. What is necessary is for the well-known means using the processing which used the look-up table (LUT), the matrix (MTX) computing element, the low pass filter, the adder, etc., the equalization processing performed combining these suitably, a interpolation operation, etc. just to perform these processings of each.

[0024] The image data-conversion section 58 changes the image data processed in the image-processing section 54 for example, using 3D(three dimensions)-LUT etc., and supplies it to an output unit 16 or the resolution transducer 60 as image data corresponding to the image recording by the output unit 16. In addition, in case image data is outputted only to the resolution transducer 60 (store 58), it is not necessary to perform processing by the image data-conversion section 58 and/or the image-processing section 54 if needed. On the other hand, the image data-conversion section 52 thins out if needed, and similarly, the image data processed in the image-processing section 50 is changed using 3D-LUT etc., is made into the image data corresponding to the display on a display 20, and it displays it on a display 20. The processing conditions in both are set up in the conditioning section 48 mentioned later.

[0025] The conditioning section 48 sets up various kinds of processing conditions in the reading conditions of this scan, the press can data-processing section 44, and this scanning data-processing section 46. The conditioning section 48 specifically reads press can data from the press can memory 40. Creation of press can data to a gray level histogram, and average concentration, LATD (large area transmission density), Compute image characteristic quantity, such as highlights (least concentration) and a shadow (maximum density), set up the reading conditions of this scan, and directions by the operator using the actuation system 18 performed if needed etc. are considered further. Image-processing conditions, such as above-mentioned color balance adjustment, gradation adjustment, etc., are set up, reading conditions are set as a scanner 12 and delivery and image-processing conditions are set as the press can data-processing section 44 and this scanning data-processing section 46. Moreover, the conditioning section 48 adjusts or resets the image-processing conditions set as the press can data-processing section 44 and this scanning data-processing section 46, when there is image adjustment by the operator by assay etc.

[0026] As mentioned above, the image data processed in the data-conversion section 56 (this scanning data-processing section 46) is outputted to an output unit 16 or the resolution transducer 60. The resolution transducer 60 is a part which performs resolution conversion of the image data outputted from the data-conversion section 56 according to the remaining capacity of the storage with which the store 58 was equipped detected by the residue detecting element 62, and is outputted to a store 58.

[0027] In addition, the storage 58 with which the picture input device of this invention outputs image data, i.e., the store connected to the picture input device of this invention, records image data. Moreover, there is especially no limitation in the storage which reads image data and is supplied to a processor 14. A floppy disk, a removable hard disk (Zip, Jaz, etc.), All of well-known storages, such as card memory, such as magneto-optic-recording media, such as magnetic-recording media, such as DAT (digital audio tape), MO (optical MAG) disk, and MD (mini disc), DVD (digital videodisc), a PC card, and SmartMedia, are available. Moreover, storage 58 may be equivalent to two or more storages. In addition, in the picture input device of this invention, even if it outputs image data to a storage [being intact (full capacity aperture)], of course, image data may be added and memorized to the storage with which a certain image data etc. was memorized previously.

[0028] By various kinds of well-known approaches, from the storage with which storage 58 was equipped, the residue detecting element 62 detects remaining capacity, and supplies a detection result to the resolution transducer 60.

[0029] The resolution transducer 60 changes the resolution of the image data outputted from the data-conversion section 56 according to directions by the operator using the remaining capacity of the storage supplied from the residue detecting element 62, the number of the images memorized to a storage (the number of coma), and actuation system 18 grade etc., namely, adjusts the image amount of data, and outputs it to storage 58.

[0030] There is especially no limitation in resolution conversion by the resolution transducer 60, and various kinds of modes are illustrated. For example, according to the remaining capacity of a storage etc., resolution may be determined that all the coma for which the output to a storage was directed will be memorizable, and resolution conversion may be performed. Moreover, when the minimum of resolution is determined in this case and all coma cannot be memorized to a

storage in the minimum resolution, warning to that effect, directions of exchange (addition) of a storage, etc. may be displayed on a display 20, or chisel resolution, such as the last coma, may be made lower than the minimum resolution according to decision of the resolution transducer 60, or directions of an operator, and all coma may be memorized to a storage. Moreover, according to a request of a customer etc., an operator may direct the resolution of image data using actuation system 18 grade. In this case, although the resolution transducer 60 performs resolution conversion of image data according to the directed resolution, when the image data of all coma does not go into a storage according to the remaining capacity of a storage, it may perform the resolution fall of the display of warning or another storage exchange, the last coma, etc. like the point. Or the minimum of resolution was directed by the operator, and when allowances are in the remaining capacity of a storage as compared with this, the resolution transducer 60 may change image data so that it may become the maximum resolution memorizable to a storage. Furthermore, it is good also as image data of resolution which is different for every coma according to directions of an operator etc., and good also as two or more image data of resolution which is different in one image. In addition, the resolution data can be memorized to a storage with the resolution of the image data outputted from the data-conversion section 56, and when allowances are in remaining capacity, it may raise resolution. Moreover, since it is not desirable to divide one image and to memorize to two or more storages in case image data is outputted to two or more storages, as for the image data storage in the processing and the store 58 in the resolution transducer 60 etc., it is desirable to avoid this.

[0031] Approaches, such as gradation (resolving power) transform processing by the approach using the electronic variable power processing and LUT using the approach of especially limitation not having in the conversion approach of the resolution in the resolution transducer 60, for example, thinning out, and interpolation-calculating, equalizing, adding, and operating on a curtailed schedule etc., the approach of carrying out division by BEKI ** of 2, etc., infanticide processing, and data compression processing, are illustrated. These may choose the processing which it is carried out by putting one or plurality together, or the resolution transducer 60 performs suitably according to the remaining capacity of a storage etc. Furthermore, in case two or more coma is outputted to storage 58, different resolution transform processing for every coma may be performed if needed. Moreover, in the resolution transducer 60 or a store 58, image data may be compressed by the well-known approach if needed.

[0032] An output unit 16 has the printer (printing equipment) which exposes sensitive material (printing paper) according to the supplied image data, and records a latent image, and the processor (developer) which outputs predetermined processing to sensitive material [finishing / exposure] as a ** 4 ** print, and is constituted. By the printer, after cutting sensitive material to the predetermined length according to a print, a back print is recorded, for example. Subsequently While becoming irregular according to the image data outputted from the processor 14 and deflecting three sorts of light beams, R exposure according to the spectral sensitivity characteristic of sensitive material, G exposure, and B exposure, to a main scanning direction By conveying sensitive material in the direction of vertical scanning which intersects perpendicularly with a main scanning direction, scan exposure of the sensitive material is carried out two-dimensional by said light beam, a latent image is recorded, and a processor is supplied. The processor which received sensitive material performs predetermined wet-developing processing of the color development, bleaching fixing, rinsing, etc., dries, considers as a print, and is classified and accumulated on predetermined units, such as film 1 duty.

[0033] Hereafter, by explaining an operation of a photograph printer explains the picture input device of this invention to a detail more.

[0034] After an operator's loading a scanner 12 with the carrier 30 corresponding to Film F, setting Film F to the predetermined location of a carrier 30, and inputting required directions of the coma which stores in a storage the coma (if it is a coincidence print the directions) which creates a print, print size, print number of sheets, and image data and loading storage 58 with a storage, print creation initiation is directed.

[0035] The drawing value of the variable aperture 24 of a scanner 12 and the storage time of image sensors 34 (Rhine CCD sensor) are set up by this according to the reading conditions of a press can. A carrier 30 conveys Film F in the direction of vertical scanning at the rate according to a press can, and a press can is started. Then, as mentioned above Slit scanning of the film F is carried out, projection light carries out image formation to image sensors 34, it is decomposed into R, G, and B, and the image photoed by Film F is read in photoelectricity. In addition, in this invention, as a line, a press can and this scan are good, and perform previously at a time one coma of every [predetermined two or more coma / all coma or] and the press cans of all the coma photoed by Film F as one example in the example of illustration although the press can and this scan could be performed continuously.

[0036] The output signal of the image sensors 34 by the press can is processed in the data-processing section 38, is made into digital image data, and is memorized by the press can memory 40 as press can data. If press can data are memorized by the press can memory 40, this will be read, creation of a gray level histogram, calculation of image characteristic quantity, etc. are performed for every coma, as mentioned above, the reading conditions of this scan will be set up and it will set [the conditioning section 4 will supply a scanner 12 and] various kinds of image-processing conditions, such as gradation adjustment and gray balance adjustment, as the predetermined part (hardware) of the setting press can data-processing section 44 and this scanning data-processing section 46.

[0037] When authorizing, it is read by the press can data-processing section 44, and the image processing of the press can data is carried out on the image-processing conditions set up in the image-processing section 50, and they are changed in the image data-conversion section 52, for example, the image of six coma is displayed on a display 20 as a simulation image. An operator looks at the display of a display 20, the check (assay) of an image, i.e., an image-processing result, is performed, a color, concentration, gradation, etc. are adjusted using the adjustment key set as keyboard 18a if needed, according to it, image-processing conditions are adjusted by the conditioning section 48, and the image displayed on a display 20 also changes. In addition, directions of the coma which outputs image data to the coma which creates a print, print size, number of sheets, and a storage etc. may be performed using a press can image.

[0038] If an operator judges with the image of this coma being proper (assay O.K.), he will issue directions to that effect, will authorize the following coma, and will authorize all required coma. Termination of assay of all coma directs print initiation using keyboard 18a etc. Thereby, image-processing conditions are decided, in a scanner 12, at the rate corresponding to this scan in a carrier 30, Film F is conveyed to a press can and hard flow, and this scan is started. In addition, when not authorizing, when a setup of the image-processing conditions to the image-processing section 54 of this scanning data-processing section 46 is ended, image-processing conditions are decided, and this scan is started.

[0039] This scan is performed like a press can, except that reading conditions, such as a drawing value of a variable aperture 24, differ, the output signal from image sensors 34 is amplified with amplifier 36, is sent to a processor 14, and processing predetermined in the data-processing section 38 is performed to it, and it is sent to this scanning memory 42 as these scanning data. In this example, as an example, Film F is continuously conveyed from a tip to the back end, and this scan of all required coma is performed. In addition, it cannot be overemphasized that reading of each coma is performed according to the reading conditions of this scan set up previously.

[0040] If these scanning data of 1 coma eye are sent to this scanning memory 42, it will be read by this scanning-and-processing section 46, will be processed on corresponding image-processing conditions in the image-processing section 54, and, subsequently will consider as the image data for an output changed in the image data-conversion section 58. If the changed image data is a coma for which the output to a storage is directed, it will be outputted to the resolution transducer 60, if it is a coma for which the print is directed, it will be outputted to an output unit 16, and if it is the coma which received both directions, it will be outputted to both.

[0041] In the photograph printer 10 of the example of illustration, when storage 58 is equipped with a storage, the remaining capacity is detected by the remaining capacity detecting element 62, and the information is sent to the resolution transducer 60. The resolution transducer 60

determines resolution that all the coma for which the output to a storage was directed can memorize to a storage from the number of coma memorized to the remaining capacity of a storage, and a storage, for example, performs resolution conversion of image data by electronic variable power processing, and sends the changed image data to storage 58. In a store 58, it memorizes to the storage loaded with the image data supplied with the header which has required information. Moreover, the remaining capacity of a storage, the amount of data of the image data under processing, the amount of data of the image data after resolution conversion, etc. may be displayed on a display 20 with the display of the above-mentioned assay image etc.

[0042] On the other hand, if image data is supplied to an output unit 16 from the image data-conversion section 58, sensitive material is exposed by the light beam modulated in the output unit according to image data, and a latent image is recorded, and subsequently, processing of development, desiccation, etc. will be performed, and it will consider as a print, and will be classified and accumulated for every one affair.

[0043] These scanning data of each coma are read one by one with the following -- the same -- carrying out -- 2 coma eye and 3 coma eye -- Are processed in this scanning data-processing section 46, and gradation transform processing of the image data of a coma to which the output to a storage was directed is carried out by the gradation transducer 60, and it is memorized by the storage with storage 58. Moreover, the coma for which creation of a print was directed is outputted to an output unit 16, and creation of a print is performed.

[0044] As mentioned above, although the picture input device of this invention was explained to the detail, this invention of various kinds of amelioration and modification being made is natural in the range which limitation is not carried out to the above-mentioned example, and does not deviate from the summary of this invention.

[0045]

[Effect of the Invention] As mentioned above, as explained to the detail, according to this invention, in the picture input device which makes the image photoed by the film digital image data, it faces memorizing image data to a storage, and an operator can memorize image data to a storage by good workability according to the remaining capacity of a storage etc.

[Translation done.]